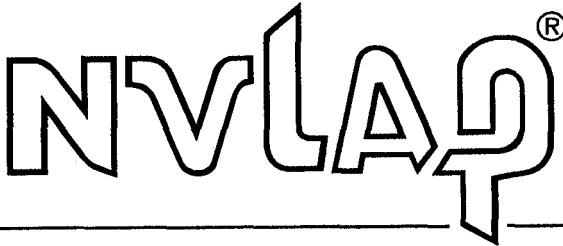


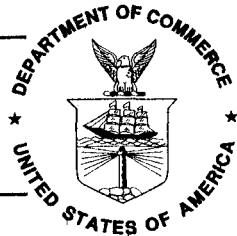
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NVLAP LAB CODE 200494-0

MARYLAND DEPARTMENT OF WEIGHTS AND MEASURES SEC.

50 Harry S. Truman Parkway
Annapolis, MD 21401
Mr. Stephen Alfred Barry
Phone: 410-841-5790 fax: 410-841-2765
E-Mail: barrysa@mda.state.md.us

DIMENSIONAL

NVLAP Code: 20/D13
Surveying Rods and Tapes

| <i>Range in inches</i> | <i>Best Uncertainty (\pm) in inches^{note 1}</i> | <i>Remarks</i> |
|------------------------|---|----------------|
| 1 | 0.0023 | Rigid Rules |
| 2 | 0.0023 | Rigid Rules |
| 3 | 0.0023 | Rigid Rules |
| 4 | 0.0024 | Rigid Rules |
| 5 | 0.0024 | Rigid Rules |
| 6 | 0.0024 | Rigid Rules |
| 7 | 0.0024 | Rigid Rules |
| 8 | 0.0024 | Rigid Rules |
| 9 | 0.0024 | Rigid Rules |
| 10 | 0.0024 | Rigid Rules |

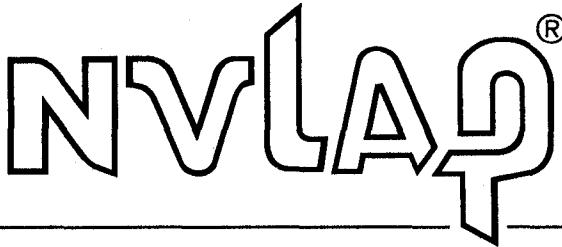
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| | | |
|----|--------|-------------|
| 11 | 0.0024 | Rigid Rules |
| 12 | 0.0024 | Rigid Rules |
| 24 | 0.0036 | Rigid Rules |
| 36 | 0.0046 | Rigid Rules |
| 48 | 0.0055 | Rigid Rules |

| Range in feet | Best Uncertainty (\pm) in inches ^{note 1} | Remarks |
|---------------|--|----------------------------|
| 1 | 0.0031 | Metal Tapes (Bench Method) |
| 2 | 0.0031 | Metal Tapes (Bench Method) |
| 3 | 0.0031 | Metal Tapes (Bench Method) |
| 4 | 0.0031 | Metal Tapes (Bench Method) |
| 5 | 0.0031 | Metal Tapes (Bench Method) |
| 6 | 0.0032 | Metal Tapes (Bench Method) |
| 7 | 0.0032 | Metal Tapes (Bench Method) |
| 8 | 0.0032 | Metal Tapes (Bench Method) |
| 9 | 0.0033 | Metal Tapes (Bench Method) |
| 10 | 0.0033 | Metal Tapes (Bench Method) |
| 20 | 0.0051 | Metal Tapes (Bench Method) |

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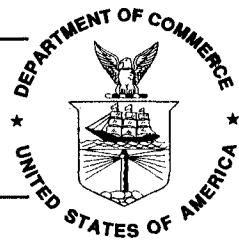
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| | | |
|-----|--------|----------------------------|
| 30 | 0.0067 | Metal Tapes (Bench Method) |
| 40 | 0.0082 | Metal Tapes (Bench Method) |
| 50 | 0.0097 | Metal Tapes (Bench Method) |
| 60 | 0.011 | Metal Tapes (Bench Method) |
| 70 | 0.013 | Metal Tapes (Bench Method) |
| 80 | 0.014 | Metal Tapes (Bench Method) |
| 90 | 0.015 | Metal Tapes (Bench Method) |
| 100 | 0.017 | Metal Tapes (Bench Method) |

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MECHANICAL

NVLAP Code: 20/M08
Mass/Metric

| Range | Best Uncertainty (\pm) in mg ^{note 1} | Remarks |
|--------|--|-----------|
| 1000 g | 0.072 | Echelon I |
| 500 g | 0.040 | Echelon I |
| 300 g | 0.029 | Echelon I |
| 200 g | 0.023 | Echelon I |
| 100 g | 0.024 | Echelon I |
| 50 g | 0.013 | Echelon I |
| 30 g | 0.0080 | Echelon I |
| 20 g | 0.0057 | Echelon I |
| 10 g | 0.0045 | Echelon I |
| 5 g | 0.0026 | Echelon I |
| 3 g | 0.0018 | Echelon I |
| 2 g | 0.0015 | Echelon I |
| 1 g | 0.0016 | Echelon I |

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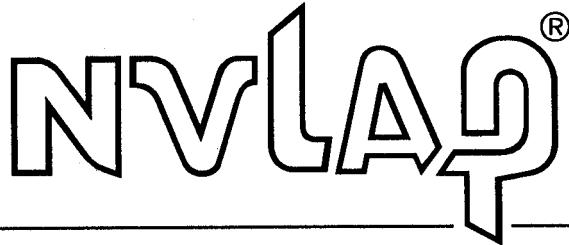
| | | |
|--------|---------|------------|
| 500 mg | 0.00083 | Echelon I |
| 300 mg | 0.00054 | Echelon I |
| 200 mg | 0.00040 | Echelon I |
| 100 mg | 0.00034 | Echelon I |
| 50 mg | 0.00024 | Echelon I |
| 30 mg | 0.00020 | Echelon I |
| 20 mg | 0.00018 | Echelon I |
| 10 mg | 0.00021 | Echelon I |
| 5 mg | 0.00021 | Echelon I |
| 3 mg | 0.00020 | Echelon I |
| 2 mg | 0.00019 | Echelon I |
| 1 mg | 0.00023 | Echelon I |
| 30 kg | 27.0 | Echelon II |
| 20 kg | 20.0 | Echelon II |
| 10 kg | 8.9 | Echelon II |
| 5 kg | 6.2 | Echelon II |

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| | | |
|--------|--------|------------|
| 3 kg | 4.6 | Echelon II |
| 2 kg | 3.0 | Echelon II |
| 1 kg | 0.14 | Echelon II |
| 500 g | 0.086 | Echelon II |
| 300 g | 0.065 | Echelon II |
| 200 g | 0.071 | Echelon II |
| 100 g | 0.031 | Echelon II |
| 50 g | 0.017 | Echelon II |
| 30 g | 0.014 | Echelon II |
| 20 g | 0.0092 | Echelon II |
| 10 g | 0.0070 | Echelon II |
| 5 g | 0.0033 | Echelon II |
| 3 g | 0.0028 | Echelon II |
| 2 g | 0.0034 | Echelon II |
| 1 g | 0.0030 | Echelon II |
| 500 mg | 0.0012 | Echelon II |
| 300 mg | 0.0012 | Echelon II |

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| | | |
|--------|--------|------------|
| 200 mg | 0.0009 | Echelon II |
| 100 mg | 0.0010 | Echelon II |
| 50 mg | 0.0009 | Echelon II |
| 30 mg | 0.0010 | Echelon II |
| 20 mg | 0.0009 | Echelon II |
| 10 mg | 0.0007 | Echelon II |
| 5 mg | 0.0010 | Echelon II |
| 3 mg | 0.0006 | Echelon II |
| 2 mg | 0.0008 | Echelon II |
| 1 mg | 0.0006 | Echelon II |

| Range | Best Uncertainty (\pm) ^{note 1,2} | Remarks |
|-------|--|-------------|
| 1 kg | 0.67 | Echelon III |
| 500 g | 0.46 | Echelon III |
| 300 g | 0.30 | Echelon III |
| 200 g | 0.28 | Echelon III |
| 100 g | 0.11 | Echelon III |

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| | | |
|--------|--------|-------------|
| 50 g | 0.069 | Echelon III |
| 30 g | 0.059 | Echelon III |
| 20 g | 0.037 | Echelon III |
| 10 g | 0.034 | Echelon III |
| 5 g | 0.0090 | Echelon III |
| 3 g | 0.0070 | Echelon III |
| 2 g | 0.0080 | Echelon III |
| 1 g | 0.0071 | Echelon III |
| 500 mg | 0.0062 | Echelon III |
| 300 mg | 0.0077 | Echelon III |
| 200 mg | 0.0049 | Echelon III |
| 100 mg | 0.0049 | Echelon III |
| 50 mg | 0.0051 | Echelon III |
| 30 mg | 0.0050 | Echelon III |
| 20 mg | 0.0049 | Echelon III |
| 10 mg | 0.0048 | Echelon III |
| 5 mg | 0.0050 | Echelon III |

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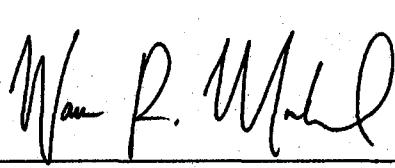
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| | | |
|------|--------|-------------|
| 3 mg | 0.0054 | Echelon III |
| 2 mg | 0.0048 | Echelon III |
| 1 mg | 0.0048 | Echelon III |

| Range | Best Uncertainty (\pm) in mg ^{note 1,3} | Remarks |
|-------|--|-------------|
| 30 kg | 160.0 | Echelon III |
| 20 kg | 120.0 | Echelon III |
| 10 kg | 71.0 | Echelon III |
| 5 kg | 18.0 | Echelon III |
| 3 kg | 14.0 | Echelon III |
| 2 kg | 9.8 | Echelon III |
| 1 kg | 8.4 | Echelon III |
| 500 g | 6.5 | Echelon III |
| 300 g | 6.5 | Echelon III |
| 200 g | 0.29 | Echelon III |
| 100 g | 0.21 | Echelon III |
| 50 g | 0.20 | Echelon III |

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| | | |
|--------|-------|-------------|
| 30 g | 0.19 | Echelon III |
| 20 g | 0.19 | Echelon III |
| 10 g | 0.19 | Echelon III |
| 5 g | 0.11 | Echelon III |
| 3 g | 0.11 | Echelon III |
| 2 g | 0.11 | Echelon III |
| 1 g | 0.067 | Echelon III |
| 500 mg | 0.015 | Echelon III |
| 300 mg | 0.016 | Echelon III |
| 200 mg | 0.015 | Echelon III |
| 100 mg | 0.015 | Echelon III |
| 50 mg | 0.015 | Echelon III |
| 30 mg | 0.015 | Echelon III |
| 20 mg | 0.015 | Echelon III |
| 10 mg | 0.014 | Echelon III |
| 5 mg | 0.015 | Echelon III |
| 3 mg | 0.011 | Echelon III |

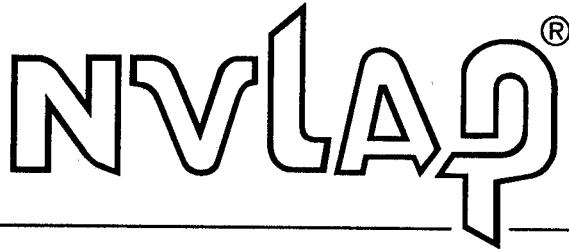
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| | | |
|------|--------|-------------|
| 2 mg | 0.011 | Echelon III |
| 1 mg | 0.0087 | Echelon III |

NVLAP Code: 20/M08
Mass/Avoirdupois

| Range | Best Uncertainty (\pm) ^{note 1} | Remarks |
|-----------|--|-------------|
| 1000 lb | 0.0036 lb | Echelon II |
| 500 lb | 0.0027 lb | Echelon II |
| 10,000 lb | 0.164 lb | Echelon III |
| 5000 lb | 0.163 lb | Echelon III |
| 2500 lb | 0.0132 lb | Echelon III |
| 2000 lb | 0.0112 lb | Echelon III |
| 10000 lb | 0.0067 lb | Echelon III |
| 500 lb | 0.0054 lb | Echelon III |
| 50 lb | 108.0 μ lb | Echelon III |
| 30 lb | 103.0 μ lb | Echelon III |
| 20 lb | 96 μ lb | Echelon III |

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| | | |
|----------|---------------|-------------|
| 10 lb | 27.0 μ lb | Echelon III |
| 5 lb | 21.0 μ lb | Echelon III |
| 3 lb | 19.0 μ lb | Echelon III |
| 2 lb | 18.0 μ lb | Echelon III |
| 1 lb | 14.0 μ lb | Echelon III |
| 0.5 lb | 14.0 μ lb | Echelon III |
| 0.3 lb | 0.53 μ lb | Echelon III |
| 0.2 lb | 0.44 μ lb | Echelon III |
| 0.1 lb | 0.43 μ lb | Echelon III |
| 0.05 lb | 0.42 μ lb | Echelon III |
| 0.03 lb | 0.42 μ lb | Echelon III |
| 0.02 lb | 0.42 μ lb | Echelon III |
| 0.01 lb | 0.24 μ lb | Echelon III |
| 0.005 lb | 0.24 μ lb | Echelon III |
| 0.003 lb | 0.24 μ lb | Echelon III |
| 0.002 lb | 0.15 μ lb | Echelon III |
| 0.001 lb | 0.15 μ lb | Echelon III |

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| | | |
|------------|--------------|-------------|
| 4 oz | 0.000013 oz | Echelon III |
| 2 oz | 0.000012 oz | Echelon III |
| 1 oz | 0.000011 oz | Echelon III |
| 0.5 oz | 0.000010 oz | Echelon III |
| 0.25 oz | 0.000010 oz | Echelon III |
| 0.125 oz | 0.0000059 oz | Echelon III |
| 0.0625 oz | 0.0000058 oz | Echelon III |
| 0.03125 oz | 0.0000038 oz | Echelon III |

NVLAP Code: 20/M12

Volume

| Range | Best Uncertainty (\pm) ^{note 1} | Remarks |
|------------------------|--|-------------|
| 5 gal (U.S.) | 0.124 in ³ | Gravimetric |
| 1 gal (U.S.) | 5.2 minims (Apothecaries) | Gravimetric |
| 1/2 gal (U.S.) | 3.2 minims | Gravimetric |
| 1 quart (U.S. liquid) | 2.5 minims | Gravimetric |
| 1 pint (U.S. liquid) | 1.6 minims | Gravimetric |
| 1/2 pint (U.S. liquid) | 0.72 minim | Gravimetric |

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| | | |
|-----------------------|----------------------|-----------------|
| 1 gill (U.S.) | 0.71 minim | Gravimetric |
| 2 ounces (U.S. fluid) | 1.9 minims | Gravimetric |
| 1800 gal (U.S.) | 57 in ³ | Volume Transfer |
| 150 gal (U.S.) | 48 in ³ | Volume Transfer |
| 1480 gal (U.S.) | 49 in ³ | Volume Transfer |
| 1000 gal (U.S.) | 33 in ³ | Volume Transfer |
| 800 gal (U.S.) | 27 in ³ | Volume Transfer |
| 740 gal (U.S.) | 26 in ³ | Volume Transfer |
| 500 gal (U.S.) | 18.0 in ³ | Volume Transfer |
| 300 gal (U.S.) | 13.0 in ³ | Volume Transfer |
| 200 gal (U.S.) | 7.4 in ³ | Volume Transfer |
| 185 gal (U.S.) | 8.3 in ³ | Volume Transfer |
| 105 gal (U.S.) | 4.1 in ³ | Volume Transfer |
| 103 gal (U.S.) | 3.9 in ³ | Volume Transfer |
| 100 gal (U.S.) | 3.9 in ³ | Volume Transfer |
| 53 gal (U.S.) | 3.9 in ³ | Volume Transfer |

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| | | |
|----------------|----------------------|--------------------------------------|
| 50 gal (U.S.) | 3.9 in ³ | Volume Transfer |
| 25 gal (U.S.) | 1.7 in ³ | Volume Transfer |
| 20 gal (U.S.) | 1.4 in ³ | Volume Transfer |
| 5 gal (U.S.) | 0.51 in ³ | Volume Transfer |
| 105 gal (U.S.) | 10. in ³ | Liquefied Petroleum Gas Prover (LPG) |
| 103 gal (U.S.) | 10. in ³ | Liquefied Petroleum Gas Prover (LPG) |
| 100 gal (U.S.) | 10. in ³ | Liquefied Petroleum Gas Prover (LPG) |
| 53 gal (U.S.) | 9.7 in ³ | Liquefied Petroleum Gas Prover (LPG) |
| 50 gal (U.S.) | 9.7 in ³ | Liquefied Petroleum Gas Prover (LPG) |
| 25 gal (U.S.) | 5.3 in ³ | Liquefied Petroleum Gas Prover (LPG) |
| 20 gal (U.S.) | 5.2 in ³ | Liquefied Petroleum Gas Prover (LPG) |

1. Represents an expanded uncertainty using a coverage factor, k=2.
2. High precision balances providing 0.7 ppm to 7 ppm accuracy within range from 1000 g to 1 g.
3. Precision balances providing 8 ppm to 70 ppm accuracy range from 1000 g to 1 g.

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